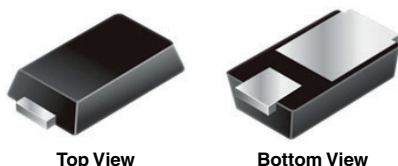


Surface-Mount TMBS® (Trench MOS Barrier Schottky) Rectifier

eSMP® Series



Top View

Bottom View

MicroSMP (DO-219AD)

Anode  Cathode

AUTOMOTIVE
GRADE
Available

RoHS
COMPLIANT
HALOGEN
FREE

FEATURES

- Very low profile - typical height of 0.65 mm
- Trench MOS Schottky technology
- Low forward voltage drop
- Low power loss, high efficiency
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- AEC-Q101 qualified available
- Automotive ordering code: base P/NHM3
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

TYPICAL APPLICATIONS

For use in low voltage high frequency inverters, freewheeling, DC/DC converters, and polarity protection applications, in commercial, industrial, and automotive applications.

LINKS TO ADDITIONAL RESOURCES



3D Models

PRIMARY CHARACTERISTICS

$I_{F(AV)}$	1.0 A
V_{RRM}	200 V
I_{FSM}	25 A
V_F at $I_F = 1.0$ A (125 °C)	0.65 V
T_J max.	175 °C
Package	MicroSMP (DO-219AD)
Circuit configuration	Single

MECHANICAL DATA

Case: MicroSMP (DO-219AD)

Molding compound meets UL 94 V-0 flammability rating

Base P/N-M3 - halogen-free, and RoHS-compliant

Base P/NHM3_X - halogen-free, RoHS-compliant, and

AEC-Q101 qualified

("X" denotes revision code e.g. A, B,.....)

Terminals: matte tin plated leads, solderable per

J-STD-002 and JESD 22-B102

M3 and HM3 suffix meets JESD 201 class 2 whisker test

Polarity: color band denotes the cathode end

MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted)

PARAMETER	SYMBOL	V1P22	UNIT
Device marking code		V1D	
Maximum repetitive peak reverse voltage	V_{RRM}	200	V
Maximum DC reverse voltage	V_{DC}	160	V
Maximum average forward rectified current	$I_{F(AV)}$ ⁽¹⁾	1.0	A
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I_{FSM}	25	A
Operating junction temperature range	T_J ⁽²⁾	-40 to +175	°C
Storage temperature range	T_{STG}	-55 to +175	°C

Notes

⁽¹⁾ Free air mounted on recommended copper pad area

⁽²⁾ The heat generated must be less than the thermal conductivity from junction to ambient: $dP_D/dT_J < 1/R_{\theta JA}$



ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage	I _F = 0.5 A	T _A = 25 °C	V _F ⁽¹⁾	0.74	-	V
	I _F = 1.0 A			0.80	0.88	
	I _F = 0.5 A	T _A = 125 °C		0.58	-	
	I _F = 1.0 A			0.65	0.73	
Reverse current	V _R = 160 V	T _A = 25 °C	I _R ⁽²⁾	0.001	-	mA
		T _A = 125 °C		0.1	-	
	V _R = 200 V	T _A = 25 °C		-	0.015	
		T _A = 125 °C		0.2	1.0	
Typical junction capacitance	4.0 V, 1 MHz		C _J	50.0	-	pF

Notes

- (1) Pulse test: 300 μs pulse width, 1 % duty cycle
 (2) Pulse test: pulse width $\leq 5\text{ ms}$

THERMAL CHARACTERISTICS ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	V1P22	UNIT
Typical thermal resistance	$R_{\theta JA}^{(1)(2)}$	130	$^{\circ}\text{C/W}$
	$R_{\theta JM}^{(3)}$	20	

Notes

- (1) The heat generated must be less than the thermal conductivity from junction-to-ambient: $dP_D/dT_J < 1/R_{\theta JA}$
 (2) Free air, mounted on recommended copper pad area; thermal resistance, $R_{\theta JA}$ - junction to ambient
 (3) Mounted on recommended copper pad area; thermal resistance, $R_{\theta JM}$ - junction to mount

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
V1P22-M3/H	0.006	H	4500	7" diameter plastic tape and reel
V1P22HM3_A/H ⁽¹⁾	0.006	H	4500	7" diameter plastic tape and reel

Note

- (1) AEC-Q101 qualified

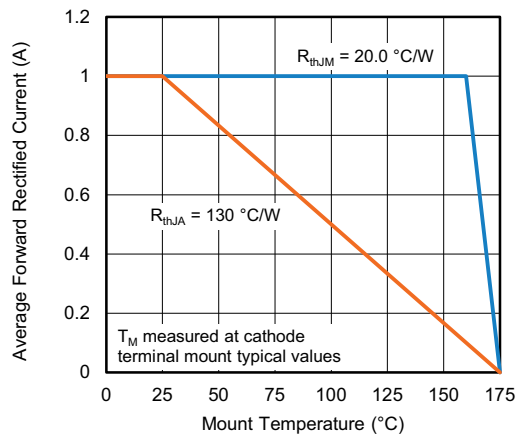
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)


Fig. 1 - Maximum Forward Current Derating Curve

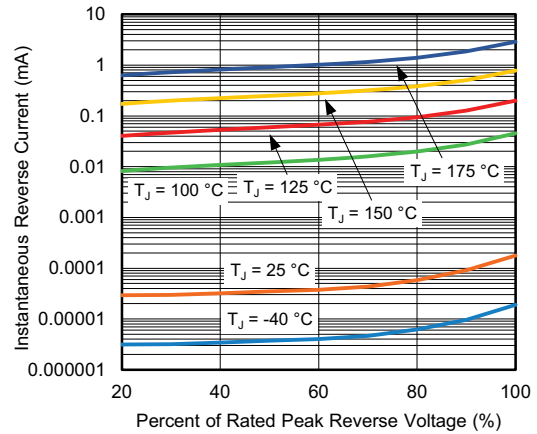


Fig. 4 - Typical Reverse Leakage Characteristics

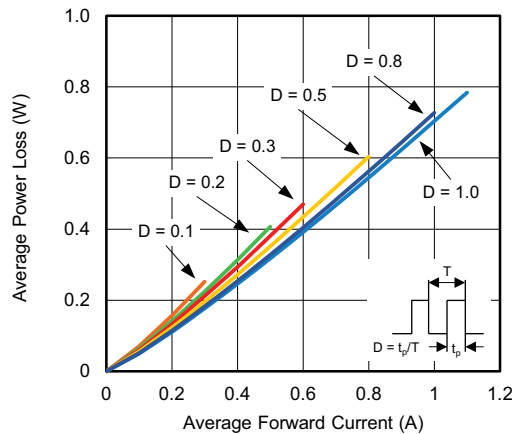


Fig. 2 - Average Power Loss Characteristics

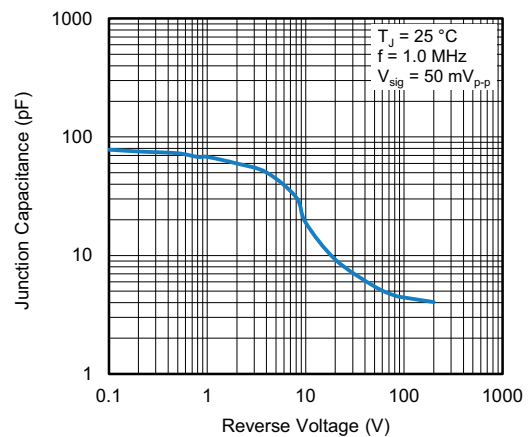


Fig. 5 - Typical Junction Capacitance

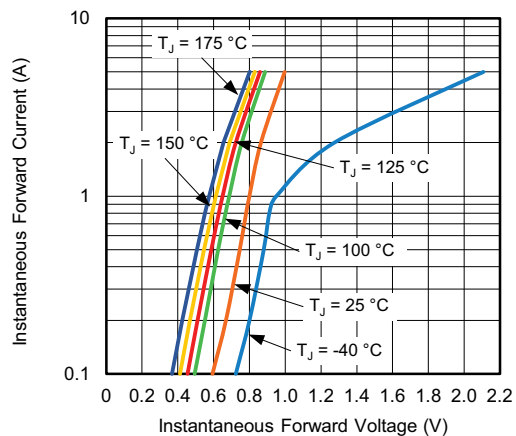


Fig. 3 - Typical Instantaneous Forward Characteristics

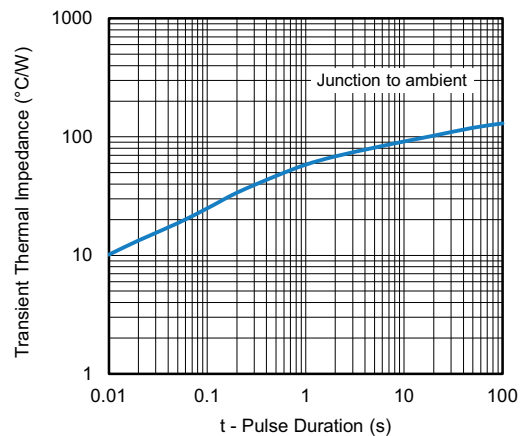
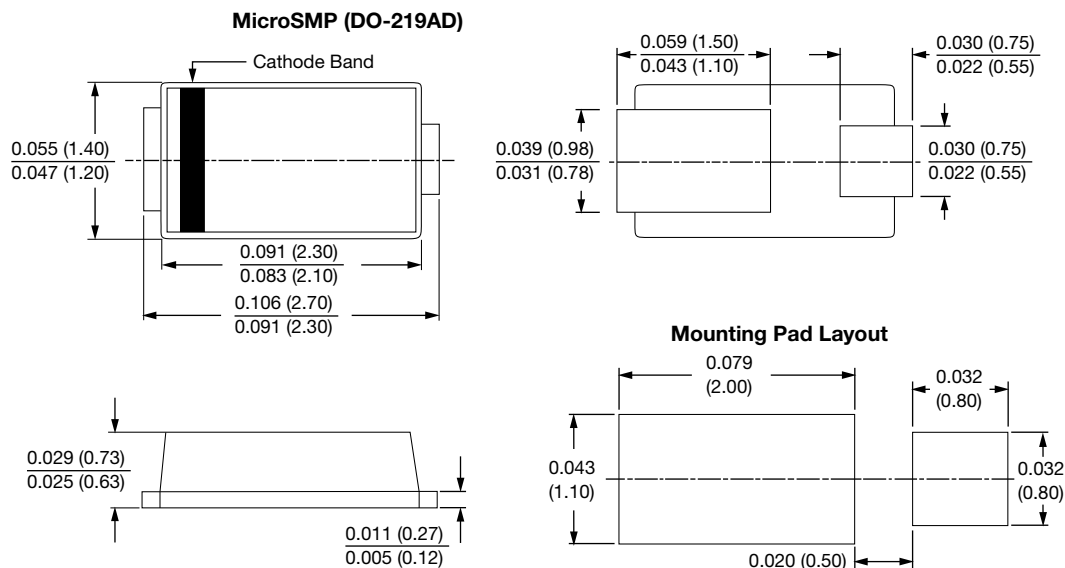


Fig. 6 - Typical Transient Thermal Impedance



PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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